



Eighteen Years of Holmium Laser Enucleation of the Prostate: A Single Center Experience

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BACKGROUND

Meta-analyses and well-designed randomized controlled trials have confirmed how well established holmium laser enucleation of the prostate (HoLEP) for treatment of benign prostatic hyperplasia (BPH). HoLEP showed superior efficacy compared to the traditional transurethral resection of the prostate. The preliminary data and randomized trial comparing HoLEP and TURP were previously reported with subsequent multiple publications from our institution. The long-term data and further analysis of these patients are now presented.

OBJECTIVE

The objective of the present study was to report our experience with long-term outcomes of HoLEP over a period of 18 years

METHODS

Between March 1998 and March 2016, a prospectively collected database for patients undergoing HoLEP for symptomatic BPH performed by single expert surgeon was reviewed. Demographic and perioperative data were collected together with the International Prostate Symptoms Score (IPSS), Quality of Life (QoL), peak flow rate (Qmax), residual urine (PVR), and PSA changes. In addition, perioperative and late adverse events were recorded.

RESULTS

Table 1: Demographic and perioperative data with long-term complications

| Variables | Mean±SD | No (%) |
|------------------------------------|--------------------------------|-----------------------------|
| Age at time of surgery (years) | 68.9 | |
| Preoperative PSA (ng/dl) | 6.1± 5.4 | |
| Preoperative IPSS | 15.9± 6.5 | |
| Preoperative QoL | 1.5± 1.4 | |
| Preoperative Qmax | 7.2±4.0 | |
| Preoperative PVR | 204± 258 | |
| Preoperative prostate size by TRUS | 90.4±50.4 | |
| Preoperative IIEF-score | 1.8±7.65 | |
| Perioperative Data | Energy utilized (KJ) | 211.26±155.10 |
| | Operating time (min) | 110.4±47.1 |
| | Enucleation time (min) | 90.8±43.6 |
| | Morcellation time (min) | 19.6±13.4 |
| | Catheterization time (days) | 1.2±0.6 |
| | Hospital stay (days) | 1.28±0.96 |
| | Intraoperative complications | Bleeding required monopolar |
| Bladder injury | | 18 (1.2%) |
| Urethral injury | | 3(0.2%) |
| Capsular perforation | | 4(0.27%) |
| Persistent LUTS | | 46 (3.2%) |
| Long-term Complications | Chronic urine retention (CIC) | 10 (0.7%) |
| | Persistent urge | 25 (1.7%) |
| | Bladder neck contracture (BNC) | 30 (2.1%) |
| | Urethral stricture | 21 (1.4%) |
| | Bladder stone | 11 (0.75%) |
| | Redo for regrowth adenoma | 21 (1.4%) |

Table 2: Long term outcome of HoLEP after 10 years follow-up

| Variable | Baseline Mean ± SD | Post-operative Mean ± SD | % Change | p-value |
|---------------|--------------------|--------------------------|----------|---------|
| PSA (ng/ml) | 5.1± 4.4 | 1.7± 2.0 | 66.7 | <0.001 |
| IPSS | 15.9± 6.5 | 6.8± 5.6 | 57 | <0.001 |
| QoL | 3.1± 1.4 | 1.5± 1.4 | 52 | <0.001 |
| Qmax (mL/sec) | 7.2±4.0 | 17.7±10.4 | 59 | <0.001 |
| PVR (mL) | 204± 258 | 43± 73 | 79 | <0.001 |

Summary

- Demographic and perioperative data are presented in **table 1**.
- After a mean follow-up of 11.2 years (2-18 years), 1455 patients were included with a mean age of 68.9 (range: 53- 86) years.
- The mean catheter time and hospital stay were 1.2 and 1.3 days, respectively.
- The IPSS (15.9± 6.5 vs. 6.8± 5.6, p<0.001) and QoL (3.1± 1.4 vs. 1.5± 1.4, p<0.001), respectively. Similarly, the peak flow rate and PVR significantly improved which might refer to the durability of HoLEP in both subjective and objective functional outcomes
- Intraoperatively, No patients required perioperative blood transfusion while 60 patients (4.1%) were found to have incidental prostate cancer.
- Compared to its pre-operative values, follow-up PSA has been reduced by 66.7% (p<0.001), which indicates adequate tissue removal.
- In terms of long-term complications: urethral stricture and bladder neck contracture were encountered in (1.4%) and (2.1%) respectively while (1.4%) required redo HoLEP for regrowth of obstructing adenoma. Interestingly, when analyzing the redo patients in this cohort, we found most of those patients were encountered early during surgeon s' learning curve.
- The study also refers to the logistic issues associated with the follow-up difficulty of the elderly population; as more than half of the study patients were lost to follow-up (after 10 years) which was one of the limitations.

CONCLUSION

Holmium laser enucleation of the prostate is safe, effective and durable for benign prostatic hyperplasia over long follow-up.